

REMARKS

In the Office Action, the Examiner rejected Claims 8-19 under 35 U.S.C. §103 as being unpatentable over the prior art. Specifically, Claims 8, 10, 11, 13, 14 and 16-19 were rejected as being unpatentable over a document titled "Production Planning and Scheduling" (ACESITA); and Claims 9, 12 and 15 were rejected as being unpatentable over ACESITA and further in view of U.S. Patent 4,459,663 (Dye). Claims 8-10 and 17 were also rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter, and Claims 16-19 were also rejected under 35 U.S.C. §112 as being indefinite.

The rejection of Claims 8-10 and 17 under 35 U.S.C. §101 and the rejection of Claims 16-19 under 35 U.S.C. §112 are respectfully traversed. Also, independent Claims 8, 11 and 14 are being amended to better define the subject matters of these claims, and new Claim 20, which is dependent from Claim 8, is being added to describe a referred feature of the invention.

For the reasons set forth below, all of Claims 8-20 are directed to statutory subject matter within the meaning of 35 U.S.C. §101, are clear and definite and fully comply with the requirements of 35 U.S.C. §112, and also patentably distinguish over the prior art and are allowable. The Examiner is, thus, respectfully asked to reconsider and to withdraw the rejection of Claims 8-10 and 17 under 35 U.S.C. §101, the rejection of Claims 16-19 under 35 U.S.C. §112, and the rejections of Claims 8-19 under 35 U.S.C. §103, and to allow Claims 8-20.

The rejections of the claims under 35 U.S.C. §§101, 112 and 103 are specifically addressed below in that order.

In rejecting Claims 8-10 and 17 under 35 U.S.C. §101, the Examiner argued, first, that these claims lack a nexus with the technological arts. Applicants respectfully disagree.

Claims 8-10 and 17 are expressly directed to "A method for allocating finished units in a production facility to orders received from customers for finished units." This is a specific, useful and tangible result, and the claims set forth the steps needed to achieve this result.

Moreover, in rejecting the claims under 35 U.S.C. §101, the Examiner may be requiring more than the statute itself actually requires. 35 U.S.C. §101 indicates that a patent may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." As explained in MPEP §706.03(a), the term "process," as defined in 35 U.S.C. §101, means "process, art or method." Claims 8-10 and 17 are clearly directed to a method, and in particular, to a method for allocating finished units to received customer orders. This is a statutory subject matter within the meaning of 35 U.S.C. §101, as explained in MPEP §706.03(a).

The Examiner further argued that Claims 8 and 17 are not statutory because they do not have an assured outcome. Applicants respectfully disagree. To support this argument, the Examiner argued that "one practicing the method could begin with a different set of units and orders and proceed in a different procession of matches." This does not mean, though, that the claims does not have an outcome. It is true that the specific matching found by practicing the methods of Claims 8 and 17 depends on the specific orders and the specific finished unit, but it does not follow that the claims is not statutory. The claims describe a method for addressing a situation – matching orders with finished units – and the claimed method provides a solution for that situation.

It is believed that a careful review of Claims 8-10 and 17 and of 35 U.S.C. §101 and MPEP §706.03(a) shows that the Examiner, in rejecting these claims under 35 U.S.C. §101 is in fact reading this section to have requirements that it does not actually have. In view of this, the

Examiner is requested to reconsider and to withdraw the rejection of Claims 8-10 and 17 under 35 U.S.C. §101.

Applicants also respectfully traverse the rejection of Claims 16-19 under 35 U.S.C. §112. In support of this rejection, the Examiner argued that “the step of identifying the largest area of each of the units that can be assigned to an order is a part of the step of iteratively assigning and unassigning, and not a separate further step, as claimed.” A careful review of page 6 of the application shows that these two steps can be considered separately. Specifically, in paragraph 37, the specification indicates that the system of the invention looks “for the largest feasible area in each metallic unit that can be assigned to” an order. The specification then goes on to state that: “Then, considering the delivery date and trying to minimize waste of material, the system iterates in a loop that assigns and unassigns material to orders...” (emphasis added). Clearly, this description is consistent with, and supports, the interpretation that the claim language describes the identifying and the iteratively assigning and unassigning steps as two separate steps.

In view of the above-discussion, the language of Claims 16-19 is clear and definite within the meaning of 35 U.S.C. §112, and the Examiner is thus asked to reconsider and to withdraw the rejection of Claims 16-19 under 35 U.S.C. §112.

With respect to the rejections of the claims under 35 U.S.C. §103, Applicants note that the references of record do not disclose or suggest identifying valid units that are available for customer orders, on the basis of defects in the finished orders and the defects that the customers are willing to accept, as described in Claims 8, 11 and 14.

With particular regard to ACESITA, this document describes preliminary ideas of an Inventory Application system, while Claims 8-20 are directed to an material reallocation system. An important feature of the ACESITA system is the capacity of considering the current condition of a piece of material and verifying what further manufacturing steps are necessary to transform that material so that it will fit an order. This system leverages this capacity in two ways: for a piece of material it identifies all the orders that piece of material could fit, or for an order, it identifies all the pieces of different materials available that could fit the order.

The invention of Claims 8-20, in contrast, is concerned with the defects on the surface of a piece of material. The preferred embodiment of this invention will allocate and reallocate orders to precise regions of coils (material) so that the minimum quality of an order is not violated while minimizing waste of material.

Contrasting to the work presented by Dye, the most importation difference is that Dye is dealing with allocating quantity of material to manufacturing orders in a discrete manufacturing production line, without simulating the different manufacturing options the material could be submitted in order to be manufactured. Our work does consider further steps that the material could be submitted in order to be manufactured. Our work does consider further steps that the material could be submitted, and the Material Reallocation System is specially concerned with the geometrical constraints of the defects and of the order requirements for the steel industry, not discrete manufacturing.

The material Reallocation algorithm starts by listing all incomplete orders by due dates. Following the list, the algorithm assigns incomplete orders to available areas of the coils (pieces of material). If no available area is found, it identifies which is the smallest order that can be unassigned in order to open space for the incomplete order. The unassigned order acquires high

priority in the original list of incomplete orders. The algorithm continues doing this until all orders are completed or no more options of reallocation is found. This is a deterministic algorithm, meaning that for a given set of input data, it always finishes with the same output.

Each of independent Claims 8, 11 and 14 describe the above-discussed difference between the present invention and the prior art. In particular, Claims 8 and 14 both describe the steps of identifying defects in the finished units and defects that the customers are willing to accept, and, on the basis of those identified and acceptable defects, iteratively assigning and unassigning valid units until either all the orders are fulfilled or there are no more assignment options to be tested. Claim 11, which is directed to a system for allocating finished units to received customer orders, describes analogous apparatus features.

Because of the above-discussed differences between Claims 8, 11 and 14, as amended herein, and the prior art, and because of the advantages associated with those differences, these claims patentably distinguish over the prior art and are allowable. Claims 9, 10, 17 and 20 are dependent from, and are allowable with, Claim 8. Similarly, Claims 12, 13 and 18 are dependent from Claim 11 and are allowable therewith; and Claims 15, 16 and 19 are dependent from Claim 14 and are allowable therewith.

For the reasons discussed above, the Examiner is respectfully asked to reconsider and to withdraw the rejection of Claims 8-10 and 17 under 35 U.S.C. §101, the rejection of Claims 16-19 under 35 U.S.C. §112, and the rejections of Claims 8-19 under 35 U.S.C. §103, and to allow Claims 8-20. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully Submitted

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